REMARKS

Applicants respectfully request reconsideration of the present application in view of the amendments set forth above and the below remarks.

Claims 1-20 are pending in the subject application. Claims 1, 18, and 19 are amended herein and claim 20 is added.

Applicants wish to thank Examiner Kim for his courtesy during the September 6, 2005 telephone conference with Applicant's attorney Judith Crowley, during which applicant's position set forth in the June 13, 2005 Response was reiterated and during which the Examiner's position as set forth in the final Office Action dated August 23, 2005 was discussed.

Claims 1-12, 14, and 16-19 remain rejected as being obvious over Archibald, Jr. et al. (U.S. Publication No. US 2002/0184580) in view of Thompson et al. (U.S. Patent No. 6,609,145). Applicants have amended independent claims 1, 18, and 19 in order to clarify that the processing time comprises a plurality of time slots and that allocating is achieved by assigning the I/O operations and the background operations to be performed during predetermined ones of the plurality of time slots based on an indicator of processor workload. It is respectfully submitted that Thompson, whether taken separately or in combination with Archibald, Jr., neither describes nor suggests "allocating processing time comprising a plurality of time slots between I/O operations and background operations by assigning the I/O operations and the background operations to be performed during predetermined ones of the plurality of time slots based on an indicator of processor workload" as claimed.

Thompson teaches assigning a user selectable priority (i.e., the REBUILD_PRIORITY in Figure 10) to disk array background operations. In particular, the REBUILD_PRIORITY is associated with a PAUSE_DURATION that indicates whether and for how long a processed command list 300 is delayed and a PAUSE_INTERVAL that "selects how many logical command lists 300 will be processed before the foreground task is delayed." (Column 16, line 58 to column

17, line 39). "Each logical command list 300 might contain one or more host logical requests for one logical volume of drive array 120." (col. 4, lines 53-55). Figure 10 illustrates the different possible REBUILD_PRIORITY selections and their associated PAUSE_DURATION and PAUSE_INTERVAL values.

As is apparent from the above discussion of Thompson and consideration of Thompson Figure 10, the "time slot" during which a background operation is performed is not a predetermined one of a plurality of time slots of which the processing time is comprised, as claimed. Rather, the time slot to which Thompson allocates a rebuild operation is determined as a function of the PAUSE_DURATION and PAUSE_INTERVAL values associated with a user selected REBUILD_PRIORITY and the particular command list(s) after which the delays are introduced and during which a rebuild operation is performed. Even given the user selected REBUILD_PRIORITY and thus, the information regarding the associated PAUSE_DURATION and PAUSE_INTERVAL, the particular one of the plurality of processing time slots during which the rebuild operation is performed will not be known. Rather what is known is that a particular delay, for example a delay of 1.6 seconds, will be introduced after every command list in the case of a REBUILD_PRIORITY of 254 for example. However, the time slot in which the rebuild operation will occur is still not a predetermined one of a plurality of time slots of which the processing time is comprised, as claimed, since the delay in Thompson is introduced and the rebuild operation is performed following execution of a command list and it is unknown how many "time slots" the command list may require for execution.

In contrast, the time slots to which Applicant's I/O operations and background operations are allocated are predetermined, as a processor's processing time is divided into time slots or slices 142 (see Figure 7 and page 12, line 9 to page 14, line 5 of the specification) and each such time slot is allocated to either an I/O operation or a background operation, based on an indicator of processor workload, as claimed. That is, I/O operations and background operations occur in predetermined ones of a plurality of time slots of which the processing time is comprised.

In response to Applicant's position, the Examiner stated that "Thompson does show allocating processing time ... for predetermined time slots", since the PAUSE_DURATION of 0.1 s to 1.6 s as shown in fig 10 are the time slots and the time slots are predetermined since the value of the PAUSE_DURATION is previously determined as shown in fig 10." (see final Office action dated August 23, 2005, page 7). Applicants respectfully submit that the amended claims make clear that the PAUSE_DURATION is not a predetermined one of a plurality of time slots of which the processing time is comprised.

Accordingly, it is submitted that independent claims 1, 18, and 19 are patentable over Archibald, Jr. whether taken separately or in combination with Thompson.

Claims 2-11, 14, and 16-17 depend from, and thus include the limitations of claim 1. Accordingly, it is submitted that claims 2-11, 14, and 16-17 are patentable at least for the reasons discussed above in conjunction with claim 1.

It is submitted that dependent claim 6 is further patentable over the cited references since the references neither describe nor suggest the method of claim 6 wherein the lookup table comprises rows corresponding to the busy levels and each row comprises a plurality of elements corresponding to the predetermined time slots. In this regard, the Examiner states that "Thompson does show allocating comprises using a lookup table [fig 10] including row corresponding to the busy levels [REBUILD_PRIOIRTY, 1 to 255, fig 10] and each row including a plurality of elements [pause duration and pause interval in fig 10] corresponding to the predetermined time slots." (Final Office Action dated August 23, 2005, page 7). However, it is submitted that neither the Thompson pause duration nor the pause interval is a predetermined one of a plurality of time slots of which the processing time is comprised.

Claims 13 and 15 are objected to as being dependent on a rejected base claim, but were indicated as being allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In view of the above, it is submitted that claims 13 and 15 are allowable as depending on an allowable base claim.

Also, applicants have added new independent claim 20 which includes substantially all of the limitations of claims 13 and its intervening claims. Thus, support for new claim 20 is found, at least, in original claim 13.

In view of the above, it is submitted that claims 1-12, 14, and 16-20 are patentable over the cited references.

The Examiner is respectfully invited to telephone the undersigning attorney if there are any questions regarding this Amendment or this application.

Applicants do not acquiesce to any assertion made by the Examiner that is not specifically addressed herein.

The Assistant Commissioner is hereby authorized to charge payment of any additional fees associated with this communication or credit any overpayment to Deposit Account No. 500845.

Respectfully submitted,

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